

**REMARKS**

By this reply, claims 1, 15 and 29 have been amended. Claims 1-29 and 31-43 are pending in the application. The amendment to claim 1 makes explicit subject matter that was implicit in this claim. The claim amendments do not narrow the scope of at least claims 15 and 29. It is respectfully submitted that the claim amendments do not (a) raise the issue of new matter, (b) raise any new issue that would require further search and/or consideration, or (c) add any additional claims, and the amendments place the application in better condition for appeal. Therefore, it is respectfully submitted that the amendments should be entered.

Reconsideration and allowance are respectfully requested in light of the following remarks.

**Allowable Subject Matter**

Applicants gratefully acknowledge that claim 14 has been allowed, and claim 15 has been indicated to contain allowable subject matter. For the reasons stated below, however, Applicants submit that all pending claims are patentable.

**Rejection Under 35 U.S.C. § 112**

Claim 15 is rejected under 35 U.S.C. § 112, second paragraph. The reasons for the rejection are stated on page 2 of the Office Action.

The Office Action states that claim 15 is indefinite because it allegedly "recites the broad recitation of an area of bottom-side product passages, and the claim also recites essentially opposite of the metal sheet which is the narrower statement of the range/limitation." For further clarification, claim 15, as amended, recites "essentially

opposite of the metal sheet, injection areas are disposed in the sieve bottom.” The phrase “that is essentially opposite of the metal sheet” defines the location of the injection areas in the sieve bottom. For example, the embodiment shown in Fig. 6b includes holes 11b located essentially opposite to the guide sheet 35.

Applicants submit that claim 15 complies with the requirements of 35 U.S.C. § 112, second paragraph. Therefore, withdrawal of the rejection is respectfully requested.

#### **First Rejection Under 35 U.S.C. § 103**

Claims 1-13, 16-29, 31 and 33-43 stand rejected under U.S.C. § 103(a) over U.S. Patent No. 5,133,137 to Petersen (“Petersen”) in view of U.S. Patent No. 5,264,196 to Tanaka et al. (“Tanaka”) or U.S. Patent No. 3,869,256 to Ziegler (“Ziegler”). The reasons for the rejection are stated at pages 3-4, numbered point (4), of the Office Action. The rejection is respectfully traversed.

Claim 1 is directed to a device for continuous thermal treatment of granular bulk material (granulate). The device comprises, *inter alia*, “a zigzag separator forming a roof of the chambers between a surface of the fluidized layer and a fluidization gas vent.” The “zigzag separator” is a component of the device. For example, in the exemplary embodiment of the device shown in Fig. 1, zigzag separator 12 forms a roof of the chambers 2, 3, 4, 5 and 6 between surface 26 of the fluidized bed 23 and the gas outlet 10 in the roof area of the device. As described at paragraph [00043] of the specification, fluidization gas is drawn off, after passing the zigzag separator 12, via the gas outlet 10. The zigzag separator allows fluidization

gas to pass while retaining granulate particles and returning them to the fluidized bed. See the description at paragraph [00027] of the specification.

Peterson discloses a fluid bed dryer. See, for example, FIG. 1 of Peterson. The dryer shown in FIG. 1 of Peterson includes partition walls 15 defining compartments 14; perforated bed plates 16, 17 forming floors of the compartments; side walls 11 and top wall 12, which forms the roof of the device. A gas discharge opening 20 is formed in the top wall 12. The Office Action acknowledges that Peterson does not disclose the recited "zigzag separator."

However, the Office Action states that Tanaka and Ziegler disclose "a zigzag alternating path (up and down) same as the applicant's." The Office Action further states that it would have been obvious to provide the fluidized bed of Petersen with "zigzag separating walls as taught by Tanaka et al or Ziegler in order to provide a serpentine path of granulate for better exchange." Applicants respectfully disagree.

As discussed above, the recited zigzag separator forms a roof of the chambers between the surface of the fluidized layer and the fluidization gas vent. The zigzag separator allows fluidization gas to pass while retaining granulate particles and returning the particles to the fluidized bed. In other words, the zigzag separator separates granulate particles from fluidization gas. As such, the zigzag separator separates granulate-free spaces on one side of the zigzag separator from fluidized granulate-containing spaces on another side of the zigzag separator.

The Office Action states that Tanaka and Ziegler disclose "zigzag separating walls." Applicants respectfully disagree. As shown in FIG. 1, Tanaka's fluid bed reaction apparatus includes partitions 1d, 2d, 3d, etc., defining chambers 1, 2, etc. The partitions do not separate granulate-free spaces from fluidized granulate

containing spaces. The roof of the apparatus also forms the roof of the chambers. Tanaka's reactor also includes gas-particle separation means 16, 17, 18, 19A, 19B, 21 and 22. Filters 16b, 17b, etc., extend vertically downward from the roof and into the chambers 1, 2, etc. Clearly, Tanaka's apparatus does not include "a zigzag separator forming a roof of the chambers between a surface of the fluidized layer and a fluidization gas vent," as recited in claim 1.

As shown in FIGS. 1 and 2, Ziegler's continuous fluid bed reactor 10 includes partitions 20 and a roof above the partitions. A gas removal port 15 is located centrally in the roof. A filter 27 is provided along conduit 24, which extends through the gas removal port 15. Clearly, Ziegler's apparatus does not include "a zigzag separator forming a roof of the chambers between a surface of the fluidized layer and a fluidization gas vent," as recited in claim 1.

Applicants further submit that "the zigzag alternating granulate path" referred to in the Office Action pertains to granulate movement within the fluidized granulate material, which is in a generally horizontal direction.

Accordingly, because none of the applied references suggests the recited zigzag separator, even if the teachings of Petersen were combined with the teachings of Tanaka or Ziegler, the combined teachings still would not result in the combination of features recited in claim 1, including, inter alia, "a zigzag separator forming a roof of the chambers between a surface of the fluidized layer and a fluidization gas vent." However, to establish *prima facie* obviousness, all claimed features must be taught or suggested by the applied references. See MPEP § 2143.03, page 2100-133. Thus, the device recited in claim 1 is patentable over the applied references.

The device recited in claim 2-13, 16-29, 31, 41 and 42, and the method recited in claims 33-40 and 43 are also patentable over the applied references for at least the same reasons as those for which claim 1 is patentable.

Therefore, withdrawal of the rejection is respectfully requested.

**Second Rejection Under 35 U.S.C. § 103**

Claims 1-13, 16-29, 31 and 33-43 stand rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 2,316,664 to Brassert et al. ("Brassert") in view of Tanaka or Ziegler. The reasons for the rejection are stated at pages 4-5, numbered point (3), of the Office Action. The rejection is respectfully traversed.

Brassert discloses an apparatus for facilitating and controlling chemical reactions or physical treatments. As shown in FIG. 1 of Brassert, the apparatus includes partitions 132. The Office Action acknowledges that Brassert does not disclose the recited "zigzag separator."

However, the Office Action states that Tanaka and Ziegler disclose "a zigzag alternating path (up and down) same as the applicant's." For reasons discussed above, neither Tanaka nor Ziegler discloses or suggests "a zigzag separator forming a roof of the chambers between a surface of the fluidized layer and a fluidization gas vent," as recited in claim 1. Thus, even if the teachings of Brassert were combined with the teachings of Tanaka or Ziegler, the combined teachings still would not result in the combination of features recited in claim 1. Therefore, the device recited in claim 1 is patentable over the applied references.

The device recited in claim 2-13, 16-29, 31, 41 and 42, and the method recited in claims 33-40 and 43 are also patentable over the applied references for at least the same reasons as those for which claim 1 is patentable.

Therefore, withdrawal of the rejection is respectfully requested.

**Third Rejection Under 35 U.S.C. § 103**

Claim 32 stands rejected under 35 U.S.C. § 103(a) over Petersen or Brassert in view of Tanaka or Ziegler, and further in view of U.S. Patent No. 3,360,867 to Sanderson ("Sanderson"). The reasons for the rejection are stated at page 5, numbered point (4), of the Office Action. The rejection is respectfully traversed.

Claim 32 depends from claim 1. Applicants submit that Sanderson also provides no suggestion or motivation to modify Peterson or Brassert to result in the device recited in claim 1. Thus, claim 32 is also patentable. Therefore, withdrawal of the rejection is respectfully requested.

**Conclusion**

For the foregoing reasons, allowance of the application is respectfully requested. If there are any questions regarding this response, Applicants' undersigned representative can be reached at the telephone number given below.

Respectfully submitted,

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Date: August 23, 2005

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